

What is claimed is

1. A DNA vaccine including plasmid containing 2-6 kb
of the total antigen gene of hepatitis C virus
5 (HCV).
2. The DNA vaccine as set forth in claim 1, wherein
the DNA vaccine includes plasmid containing 2-4
kb of the total antigen gene of HCV.
- 10 3. The DNA vaccine as set forth in claim 1, wherein
the DNA vaccine includes all of the 1st plasmid
containing core, E1 and E2 genes, the 2nd plasmid
containing NS3 and NS4 genes, and the 3rd plasmid
15 containing NS5 gene.
4. The DNA vaccine as set forth in claim 3, wherein
the 1st plasmid contains core in which 35-40 amino
acids of N-terminal region are eliminated.
- 20 5. The DNA vaccine as set forth in claim 4, wherein
the 1st plasmid contains core in which 40 amino
acids of N-terminal region are eliminated.
- 25 6. The DNA vaccine as set forth in claim 3, wherein

the E2 gene of the 1st plasmid contains
transmembrane domain of E2 protein.

- 5 7. The DNA vaccine as set forth in claim 3, wherein
the 1st plasmid contains a base sequence
represented by SEQ. ID. No 50.
- 10 8. The DNA vaccine as set forth in claim 7, wherein
the 1st plasmid is pGX10 gDsΔ ST (Accession No:
KCCM 10415).
- 15 9. The DNA vaccine as set forth in claim 3, wherein
the 2nd plasmid contains a base sequence
represented by SEQ. ID. No 51.
- 20 10. The DNA vaccine as set forth in claim 9, wherein
the 2nd plasmid is pGX10 NS34 (Accession No: KCCM
10417).
- 25 11. The DNA vaccine as set forth in claim 3, wherein
the 3rd plasmid contains a base sequence
represented by SEQ. ID. No 52.
12. The DNA vaccine as set forth in claim 11, wherein
the 3rd plasmid is pGX10 NS5 (Accession No: KCCM

10416).

13. The DNA vaccine as set forth in claim 3, wherein the 1st plasmid contains a base sequence represented by SEQ. ID. No 50, the 2nd plasmid contains a base sequence represented by SEQ. ID. No 51, and the 3rd plasmid contains a base sequence represented by SEQ. ID. No 52.
14. The DNA vaccine as set forth in claim 13, wherein the 1st plasmid is pGX10 gDsΔ ST (Accession No: KCCM 10415), the 2nd plasmid is pGX10 NS34 (Accession No: KCCM 10417), and the 3rd plasmid is pGX10 NS5 (Accession No: KCCM 10416).
15. The DNA vaccine as set forth in claim 14, wherein the pGX10 hIL-12m is additionally contained.
16. A recombinant adenovirus vaccine including an adenovirus containing 2-6 kb of total antigen gene of HCV.
17. The recombinant adenovirus vaccine as set forth in claim 16, wherein the recombinant adenovirus vaccine includes an adenovirus containing 2-4 kb

of total antigen gene of HCV.

18. The recombinant adenovirus vaccine as set forth
in claim 16, wherein the recombinant adenovirus
5 vaccine includes all of the 1st adenovirus
containing core, E1 and E2 genes, the 2nd
adenovirus containing NS3 and NS4 genes, and the
3rd adenovirus containing NS5 gene.
- 10 19. The recombinant adenovirus vaccine as set forth
in claim 18, wherein the 1st adenovirus contains
core in which 35-40 amino acids of N-terminal
region are eliminated.
- 15 20. The recombinant adenovirus vaccine as set forth
in claim 19, wherein the 1st adenovirus contains
core in which 40 amino acids of N-terminal region
are eliminated.
- 20 21. The recombinant adenovirus vaccine as set forth
in claim 18, wherein the E2 gene of the 1st
adenovirus contains transmembrane domain of E2
protein.
- 25 22. The recombinant adenovirus vaccine as set forth

in claim 18, wherein the 1st adenovirus contains a
base sequence represented by SEQ. ID. No 50.

23. The recombinant adenovirus vaccine as set forth
5 in claim 22, wherein the 1st adenovirus is rAd gDs
Δ ST (Accession No: KCCM 10418).

24. The recombinant adenovirus vaccine as set forth
in claim 18, wherein the 2nd adenovirus contains a
10 base sequence represented by SEQ. ID. No 54.

25. The recombinant adenovirus vaccine as set forth
in claim 24, wherein the 2nd adenovirus is rAd gDs
NS34 (Accession No: KCCM 10420).

15 26. The recombinant adenovirus vaccine as set forth
in claim 18, wherein the 3rd adenovirus contains a
base sequence represented by SEQ. ID. No 52.

20 27. The recombinant adenovirus vaccine as set forth
in claim 26, wherein the 3rd adenovirus is rAd NS5
(Accession No: KCCM 10419).

25 28. The recombinant adenovirus vaccine as set forth
in claim 18, wherein the 1st adenovirus contains a

base sequence represented by SEQ. ID. No 50, the
2nd adenovirus contains a base sequence
represented by SEQ. ID. No 54, and the 3rd
adenovirus contains a base sequence represented
5 by SEQ. ID. No 52.

29. The recombinant adenovirus vaccine as set forth
in claim 28, wherein the 1st adenovirus is rAd gDs
Δ ST (Accession No: KCCM 10418), the 2nd
10 adenovirus is rAd gDs NS34 (Accession No: KCCM
10420), and the 3rd adenovirus is rAd NS5
(Accession No: KCCM 10419).

30. A vaccine administrating method characterized by
15 enhancing the protective immunity to HCV by
boosting with the recombinant adenovirus vaccine
of claim 16 after priming with the DNA vaccine of
claim 1.

20 31. The vaccine administrating method as set forth in
claim 30, wherein the priming frequency of the
DNA vaccine is 4-5.

32. The vaccine administrating method as set forth in
25 claim 31, wherein the priming frequency of the

DNA vaccine is 3.

33. A vaccine administrating method characterized by enhancing the protective immunity to HCV by boosting with the recombinant adenovirus vaccine of claim 28 once after priming with the DNA vaccine of claim 13 three times.
34. A method to enhance the protective immunity to HCV by increasing CD4+ Th1 immune response by boosting with the recombinant adenovirus vaccine of claim 16 after priming with the DNA vaccine of claim 1.
35. A method to enhance the protective immunity to HCV by increasing CD4+ Th1 immune response by boosting with the recombinant adenovirus vaccine of claim 28 once after priming with the DNA vaccine of claim 13 three times.
36. A method for the prevention and the treatment of hepatitis C, which is characterized by boosting with the recombinant adenovirus vaccine of claim 16 after priming with the DNA vaccine of claim 1.

37. A method for the prevention and the treatment of hepatitis C, which is characterized by boosting with the recombinant adenovirus vaccine of claim 28 once after priming with the DNA vaccine of claim 13 three times.

5